

363.73  
09773  
G721  
1993

---

---

*Seventh Annual  
Governor's  
Pollution Prevention  
Awards*

---

---

*Award and Certificate Winners*

*Award Ceremony  
September 22, 1993  
The Executive Mansion  
Springfield, Illinois*







# Seventh Annual Governor's Pollution Prevention Awards

---

It is with great pleasure that we present the Seventh Annual Governor's Pollution Prevention Award winners. Since 1987, the Illinois Hazardous Waste Research and Information Center has worked with the Governor's Office and the Illinois Environmental Protection Agency to recognize the successful efforts of industries and others to reduce the hazardous and non-hazardous waste and emissions they generate. These organizations are setting an example for others in the state by their efforts to increase efficiency of operation and to provide for long term environmental protection through their efforts to reduce waste at the source. We have recognized organizations in the following categories: communities, educational institutions, trade organizations, vendors, and small, medium and large facilities.

---

# **Seventh Annual Governor's Pollution Prevention Awards**

---

## **Trade Organization**



### ***Chemical Industry Council of Illinois — Rosemont, IL***

The Chemical Industry Council of Illinois, a trade organization established to serve the needs of chemical manufacturers, promotes pollution prevention among its membership. A partner association in the Chemical Manufacturers Association's Responsible Care Program, CICI conducts various pollution prevention activities throughout the state, including pollution prevention workshops and seminars for their members. They also compiled a press release on Toxic Release Inventory quantities of their member companies and noted the overall and media-specific reductions. CICI is organizing a state advisory panel to increase participation in Illinois EPA's Partners in Pollution Prevention Program.

## **Vendor**



### ***Nalco Chemical Company— Naperville, IL***

Nalco Chemical Company is the world's largest producer of water, process, and wastewater treatment chemicals. Nalco has established a Water and Waste Minimization Department.

The department's mission is to reduce the demand for freshwater and to minimize the discharge of wastewater from their own facilities as well as from their customer's plants. This department focuses on two areas: program development and project engineering which includes process development and pilot field projects. In support of this effort, Nalco has developed mobile pilot plants, known as Advanced Recycling Centers™ (ARC), which are used for on-site demonstrations of water conservation and recycling programs. ARCs contain unit operations for removing contaminants from water, pilot cooling towers, and complete analytical laboratories. Nalco's own water conservation and recycling program has saved over \$100,000 in water costs and \$25,000 in wastewater costs. The company has also assisted its customers in saving over \$1 million through similar water conservation and recycling programs initiated through use of the ARCs.



***Chicagoland Processing Corporation—  
Mt. Prospect, IL***

Chicagoland Processing Corporation recycles photographic and X-ray film. They recover and refine the silver content from the film and mint pure silver commemorative medallions. CPC has also developed a new lumber substitute, known as Envirowood, made entirely of commingled plastic and plastic film generated from their scrap film recycling process. Envirowood can be used to manufacture reusable loading pallets, picnic tables, trash receptacles, decking, and fencing. Because of CPC's large-scale recycling capabilities, Envirowood loading pallets can be produced at a much cheaper price than other plastic pallets and can replace the traditional wood pallets that are typically scrapped after six months of use. CPC is taking plastic waste from large manufacturers such as 3M and Ford Motor Co., recycling it, and selling it back in the form of Envirowood plastic pallets. CPC saves approximately \$120,000 per month by utilizing their own scrap plastic for Envirowood production rather than using virgin plastic or recycled plastic obtained from other sources.

## ***Community Group***

---



### ***Aurora Sanitary District— Oswego, IL***

The Aurora Sanitary District, a municipal wastewater treatment facility, has implemented a program to reduce their ammonia discharge into the Fox River. By modifying the operating schedules of certain processes, the ammonia load of the filtrate routed to wastewater treatment was equalized, rather than having high and low loads at different times of the day. The plant's subsequent biological treatment process handles the more constant ammonia load much better than the fluctuating amounts previously introduced to the system. This process modification required no capital investment and reduced the monthly average ammonia concentration discharged by 83 percent. The total ammonia discharged in 1992 was reduced by 86 percent (127,000 pounds) over the 1991 discharge. This improvement, along with several others made over the last 10 years, has been implemented without any increase in the residential user's fees.



### ***Central States Education Center— Champaign, IL***

The Central States Education Center is a community organization that focuses on natural resource and environmental issues. The Center has established a unique volunteer-implemented waste reduction program known as the Model Community Program. Model Community personnel train volunteers to help transform businesses, government institutions, and civic groups into models of waste reduction. To become a model, an organization must meet standards in four areas: waste prevention, elimination of toxins, purchase of recycled products, and recycling. The Center trains a steering committee to approach potential models in their community. If interested, the potential models recruit in-house committees. The Center has also developed a training manual for developing a Model Community Program and provides 15 training sessions throughout the year in

participating communities. Currently, the program operates in eight Illinois communities and has identified more than 140 model businesses, industries, and organizations that have reduced the volume and/or toxicity of their overall waste streams.

## **Educational Institution**



### ***University of Illinois at Urbana-Champaign, IL***

The University of Illinois has established a comprehensive Recycling and Material Management Program at the Urbana-Champaign campus. This program is designed to conserve materials and energy by promoting waste reduction, reuse, and recycling. Various departments and student groups have identified and implemented reuse opportunities, such as reusing animal bedding for mushroom farming and collecting old phone books for reuse as roofing material, hand towels, insulation, and animal bedding. The University also supports campus-wide recycling of paper, aluminum, plastic, glass, cardboard, scrap metal, wood, and other materials. All faculty, staff, and students can participate in this program. The University has also developed the nationally recognized Hazardous Waste Minimization and Recycling Program and is conducting a laboratory waste minimization survey to identify opportunities to reduce laboratory wastes.

## ***Small Facility***

***(1-150 employees)***

---



### ***Griffin Wheel Company—West Chicago, IL***

Griffin Wheel Company, a manufacturer of railroad brake shoes, has implemented the "Solvent Free Project" to reduce solvent waste and emissions associated with production of composition brake shoes. Previously, the solvent toluene was used to lower the viscosity of the resin for mixing and to soften the rubber in the binder matrix. To

eliminate solvent use, Griffin worked with the supplier to reformulate the resin so solvents were unnecessary. A high shear mixer was purchased which uses mechanical force rather than chemical processes to mix the components of the matrix. Griffin eliminated the need for nearly 2 millions pounds of toluene per year. They also went from being DuPage County's largest single source of toluene air emissions (200,000 to 400,000 pounds per year emitted) to zero toluene emissions due to this change.



### ***R.B. White, Inc. — Bloomington, IL***

R.B. White Inc., a sheetmetal fabricator, uses an aqueous degreasing/phosphating process to remove oils from the metal and to apply a rust inhibitor prior to painting. They assisted in developing and installing an ultrafiltration system to remove emulsified oils from their phosphating/degreasing bath and to recover the phosphating and cleaning agents from the bath. Prior to the installation of the ultrafiltration system, this 5,000 gallon degreasing/phosphating bath was disposed of approximately every three months. Once the ultrafiltration system was operating, oils were continuously removed from the bath, thus generating only 250-300 gallons of waste per year. The phosphating and cleaning agents now mostly remain in the bath, thus reducing the requirement for new chemicals. R.B. White saves approximately \$30,000 per year from reduced disposal and chemical costs.

## ***Medium Facility***

***(151-500 employees)***



### ***Harris Corporation, Broadcast Division - Quincy, IL***

Harris Corporation, a radio and television transmitter manufacturer, implemented several projects to reduce waste volume, toxicity, and improve product quality. To eliminate the need for methyl chloroform (TCA, an ozone depleting compound) as a cleaning agent for hand-soldered printed circuit boards, Harris evaluated both no-



clean and water-clean solders. Water-clean solders were found to be effective for their product line and were introduced into the process. The results were a raw materials savings of \$4,500 per year and elimination of associated TCA disposal costs. A less toxic solvent was substituted for the methyl ethyl ketone (MEK) used as a paint reducer and cleaning solvent. Paint room employees also evaluated batch paint requirements, modified their mixing process to generate only the required amount, and thus reduced their paint waste by up to 75 percent, saving \$36,000 per year in disposal costs. By installing a gravity settler in their wastewater treatment system, Harris saved \$30,000 per year in sludge disposal and an additional \$8,000 per year in chemical consumption costs. Harris has also installed a solvent distillation unit to recycle the remaining solvents. Employee participation played a key role in the successful implementation of process changes at Harris.



### ***G.E. Plastics - Ottawa, IL***

G.E. Plastics, a manufacturer of thermoplastic resins, has established a Waste Minimization Team consisting of an employee representative from each of the seven major operating areas. Through the efforts of this team, G.E. Plastics implemented several projects to reduce waste. After years of experimentation, the process used to manufacture thermoplastic resin was modified. This reduced the amount of trace unreacted chemicals in the product and drastically reduced emissions of volatile organic compounds by 90 percent, or more than 1 million pounds per year. G.E. also installed a separation system to break the waste water/organic compound emulsion resulting from the resin manufacturing process. By reducing the waste volume sent off-site by 70 percent, G.E. realized an annual savings of over \$70,000. G.E. also modified the packaging of their product by reducing the number of containers and saving \$92,000 per year in packaging materials purchase. The company has also implemented a bulk storage/transfer system for chemicals that were previously purchased in drums, thus eliminating disposal of over 700 drums per year.



## ***Arens Controls, Inc. - Evanston, IL***

Arens Controls manufactures mechanical and electrical controls. Through their pollution prevention activities, Arens has realized an estimated cost savings of \$270,000 per year. They replaced their mineral spirits parts washing operation with an aqueous-based system equipped with an oil-water separator. This reduced their waste generation per month from 350 gallons of spent mineral spirits to less than 5 gallons per month of non-hazardous oil skimmed from the system, thus saving over \$9,000 per month in disposal and labor costs. To reduce the amount of cutting oil disposed of off-site, an oil filtering system was installed to prolong the life of the coolant, resulting in a reduction of 2,400 gallons and \$14,000 per year in disposal costs. Arens has also upgraded two water-cooled air compressors to air-cooled compressors and installed a recirculation system for cooling water, thus reducing the total water usage at the facility by 75%, or 9 million gallons. A solid waste trash compactor has also reduced the total volume of waste cutting disposal costs by 66 percent.

## ***Large Facility***

***(>500 employees)***



## ***Motorola, Inc. - Schaumburg and Libertyville, IL***

Motorola, Inc. Illinois' facilities manufacture electronic products, including cellular telephones, two-way radios and base stations, ballasts for fluorescent lighting, parts for the automotive industry and personal paging systems. Motorola has a strong commitment to pollution prevention with emphasis on source reduction, reuse, and recycling. In 1989, Motorola made a corporate-wide commitment to eliminate the use of chlorofluorocarbons (CFCs) and other ozone depleting compounds by the end of 1992. These compounds were used primarily to clean printed circuit boards after soldering. Motorola has now implemented a no-clean soldering technology. Not only did this eliminate 100 percent of ozone depleting substances, but it also reduced

production time and eliminated the CFC-based cleaning equipment which has since been decommissioned and scrapped. This resulted in a cost savings from avoided solvent purchases of over \$100,000 per year for the two Cellular Subscribers Group facilities that had been using CFCs. The solder system greatly reduces volatilization of solvents, thereby limiting volatile organic compound emissions. Nitrogen hoods were also installed to reduce the oxidation of the solder, thus reducing the amount of lead-bearing solder waste.



### ***Mobil Oil Corporation - Joliet, IL***

Mobil Oil's Joliet Refinery processes crude oil into premium petroleum products. The refinery has established a core team to coordinate, track, and ensure timely implementation of the pollution prevention program, projects, and procedures known as the Waste Minimization Committee (WMIN). This team has representatives from all departments at the facility. The facility has implemented a comprehensive program to track waste generated for off-site disposal and for wastes generated for recycle/reuse. This program includes color-coded dumpsters for various waste types. Monthly reports generated from this waste tracking program not only promote employee waste awareness but also provide specific focus areas for the WMIN committee. This program is being expanded to include waste management cost allocation to the specific waste generator. The WMIN team focused on residual oil and debris, the largest contributor to off-site landfill disposal. By training employees on source reduction and proper spill clean-up procedures, this waste stream was greatly reduced with a savings of over \$85,000 in disposal costs alone. A new vessel design also allowed Mobil to recycle oily solids generated from their wastewater treatment facility and thus save over \$500,000 in disposal costs. Source reduction techniques, such as review of operating procedures and process engineering modifications, were applied to spent caustic solids and caustic debris waste streams resulting in reduction of both. Mobil has also established a WMIN subcommittee to address general solid waste.



## ***Tellabs Operations, Inc. - Lisle, IL***

Tellabs designs and manufactures voice, data, and digital telecommunications equipment. Since 1988, they have been working to reduce the chlorofluorocarbons used in their wave soldering operations. By implementing a no-clean flux process, they have reduced their 1992 CFC use by 78 percent, thus saving \$930,000 in material costs to date. They are also moving to a spray fluxing process to reduce raw material consumption and hazardous waste generation, expected to save nearly \$90,000 per year. Tellabs has also been practicing closed-loop recycling for their solder residue.



---

## ***HWRIC Pollution Prevention Services***

**T**he Illinois Hazardous Waste Research and Information Center, a non-regulatory agency, can help your company meet its pollution prevention or waste management needs in a number of ways. Answering questions via telephone, conducting on-site visits and evaluation, in-depth assessments as requested, and assistance with technology modifications or through research in our pilot lab facilities, are among the services available from HWRIC. Staff engineers have industrial experience and are able to apply their "real-world" knowledge to assist with overcoming problems in implementing pollution prevention programs, plans, or projects.

### ***Pollution Prevention Program Development Assistance***

---

- ❖ On-site presentations on methods to develop a pollution prevention program and increase staff awareness.
- ❖ In-depth assessments to aid facility staff in identifying pollution prevention opportunities
- ❖ Work with facility management or staff to develop an action plan for incorporating pollution prevention into the company's way of doing business
- ❖ Train facility staff in pollution prevention concepts and techniques
- ❖ Provide case study examples from our database and extensive library
- ❖ Provide guidance manuals, reports, and factsheets on pollution prevention

## **Process Efficiency Research and Development Assistance**

- ❖ Evaluate equipment or techniques as applied to a specific process. Projects can be conducted in HWRIC's pilot lab or on-site utilizing equipment available from the Center. Additionally, HWRIC maintains agreements with equipment suppliers such that many other equipment alternatives can be tested on a trial basis.
- ❖ Evaluate materials and material substitutions as used in a specific process and their consequent effects on waste generation
- ❖ Provide technical information to a company in order for them to evaluate modifying their waste generating processes in-house vs. using a vendor

## **Industrial Affiliates Program**

HWRIC, in conjunction with professors in engineering and chemistry from the University of Illinois, is seeking industrial affiliates to form a partnership in order to promote pollution prevention and to identify and test clean technologies. Testing of technologies and processes to reduce waste will be done both within HWRIC's laboratories and at industrial facilities. The economic and environmental advantages of these technologies will be documented and the information transferred to other companies. The goal of the program is to increase the competitiveness of Illinois companies and provide greater marketing opportunities for economically and environmentally advantageous technologies and products. Activities to be supported with funds contributed from industrial affiliates include technology research and development studies, training of students and industry staff, assistance in developing and sustaining pollution prevention programs, development of a clean technology compendium for Illinois, and hosting an annual affiliates seminar at which participating companies will have an opportunity to recommend future program goals and activities. Those interested in participating in this new program should contact Dr. David L. Thomas, Director; Dr. Gary D. Miller, Assistant Director; or Dr. Marvin D. Piwoni, Laboratory Services Manager.



**Hazardous Waste Research and Information Center**  
**One East Hazelwood Drive**  
**Champaign, Illinois 61820**  
**(217) 333-8940**  
**FAX (217) 333-8944**

UNIVERSITY OF ILLINOIS-URBANA



3 0112 110764815